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ABSTRACT

The Ohio Sixth-grade Proficiency Tests are designed to measure a sixth-grade level of literacy and basic competence. Beginning in March 1996, Ohio sixth graders will take proficiency tests in writing, reading, mathematics, citizenship, and science. Both teachers and administrators have been involved in the test development process, establishing learning outcomes for each subject area using the state-adopted model courses of study. Test items are reviewed for bias and cultural sensitivity, as well as their alignment with the curriculum. Each multiple-choice item has four response choices. Students will be given 2.5 hours to complete each test, although it is expected that most students will be finished in 75 minutes. The writing test, which is defined by eight learning outcomes, will consist of a topic or stimulus that will direct two writing exercises. Writing exercises will be holistically scored on a four-point scale. The reading test, defined by 18 learning outcomes, will contain multiple-choice, short-answer, and extended response items that relate to reading passages based on fiction, poetry, and nonfiction. Twenty-four learning outcomes define the mathematics test, which will contain 34 multiple-choice, 10 short-answer, and 2 extended response items. The same item format is used in the citizenship test, based on 22 learning outcomes, and the science test, based on 17 learning outcomes. A description of test content is given for each of the tests. Five sources of further information on the proficiency test are listed. (Contains seven tables and two reading diagrams.) (SLD)

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ED 403 283

Sixth-grade Proficiency Tests: Information Guide

Ohio Department of Education
Columbus, Ohio
August 1995

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Introduction

What are the Sixth-grade Proficiency Tests?

The purpose of the Sixth-grade Proficiency Tests is to measure a sixth-grade level of literacy and basic competency. Beginning in March 1996, sixth-grade students will take the Sixth-grade Proficiency Tests in writing, reading, mathematics, citizenship, and science.

The sixth-grade tests will be administered once annually, beginning the first Monday following March 15. There will be a make-up period for any students missing the regular administration of the test.

Overview of Proficiency Process

How are Ohio educators involved in the sixth-grade proficiency test development process?

Both teachers and administrators are heavily involved in all aspects of the development of items for the sixth-grade proficiency tests. The Ohio Department of Education (ODE) begins by asking school districts and many professional organizations for names of people they would like to recommend to serve on content committees. Included among the organizations are Ohio Education Association, Ohio Federation of Teachers, Ohio School Boards Association, Buckeye Association of School Administrators, Ohio Association of Elementary School Administrators, Ohio Association of Supervision and Curriculum Development, Ohio Association for the Education of Young Children, Ohio School Supervisors Association, Ohio Council for the Teaching of the Language Arts, Ohio Council of the International Reading Association, Ohio Council of Teachers of Mathematics, Ohio Council for the Social Studies, and Science Education Council of Ohio. The names submitted are used to build committees that represent diversity in ethnicity, gender, geography, and size and kind of school districts. A committee of 25 is built for each content area with teachers representing half of the 25 selected for each group. This group of 25 is known as the content review committee in a specific test area.

What is the source of the learning outcomes?

The first job of each content review committee was to come together to discuss and eventually decide what the learning outcomes should be for that grade and that subject area. The source documents in writing, reading, citizenship, mathematics, and science were the State Board of Education adopted model courses of study. Specific learning outcomes are performance objectives at the tested grade level or below.

What process does an item go through to become a part of an operational form?

ODE must create a document, an invitation to bid, that lists and describes all activities and products involved in the scope of work that a contractor would have to perform. Potential contractors submit bids on how they would complete all activities and products required. ODE evaluates proposals to find the lowest and most responsive bid. The successful contractor then proposes test and item specifications which have specified the learning outcomes to the content review committees.

The contractor next develops items that meet the approved specifications. Each item goes through a five-step process before it can appear in an operational form of the proficiency tests:

- Step 1—The Bias Review/Sensitivity committee looks over all materials to make sure materials are not disadvantageous to individuals or groups. Any changes the committee makes are made to all materials before going on to the second step. This sensitivity committee is made up of 18 people who represent Ohio's diverse population. The committee, which includes a teacher in each content area, looks at all content areas.

- Step 2—The content review committee (one in each of the sixth-grade test areas) also looks at all the materials in that content area and makes any changes that the group requires.

- Step 3— Items are tried out, or field-tested, in circumstances similar to those for operational testing, that is, on a similar population and at a similar time of year. Operational test forms for reading, mathematics, citizenship, and science will contain some embedded field-test items, so that successful new test items can be continually added to the item bank.

- Step 4—Field-tested items go back through Bias Review with information about the performance of the items in the field testing. Any changes the committee decides to make to items will necessitate field testing those items again. Each item is voted on by the committee.

- Step 5—Field-tested items go back through the specific content review committees with information about performance of items in the field testing. Any changes the committee decides to make to items will necessitate field testing those items again. Each item is voted on by the committee.

Only items that go through *all five steps* successfully are eligible to be included in the item bank and used in an operational form of the test or in the practice test.

How were items developed and chosen for inclusion in the practice test?

A half-length practice test is one of the products developed by the contractor. Items on the practice test have been through the five-step process described on the preceding page and must reflect several factors:

- as many learning outcomes as possible
- as many item formats as possible
- the average difficulty of the item bank

Items appearing on the practice test will not be used on an operational form of the test.

How will teachers and students receive copies of the practice test?

Each fall, enough copies of the sixth-grade practice tests and answer booklets will be mailed to elementary school principals so that each Ohio fifth-grade and sixth-grade student will receive a copy. Copies of a separate booklet of instructions, answers, and the spread of learning outcomes represented in the practice test are sent in the same mailing. This is the same half-length practice test that is printed and mailed out each fall. Additional copies may be obtained by contacting the Assessment Center (614) 466-0223.

Administration of the Proficiency Tests

What do teachers need to share with students about the sixth-grade tests?

- Students will have a maximum of two and one-half hours to finish each test. It is expected that most students will be able to complete work on a test within approximately 75 minutes. At least one break will be included in the administration of the test. This break will occur approximately after the initial 35 minutes of the test.

- The tests will follow the same administration sequence as all other proficiency tests: first day, writing; second day, reading; third day, mathematics; fourth day, citizenship; and fifth day, science. Districts may decide whether to administer one test per day or multiple tests per day. The same sequence must be followed whether it is decided to administer a single test per day or multiple tests per day. A maximum of two and one-half hours must be allowed for each test.

- The tests will consist of two test booklets (Writing, Reading, and Mathematics; Citizenship and Science) and one answer booklet.

- All work must be done in the answer booklet. Students will be expected to show all work and write all answers in the answer booklet. Any work that has been written should remain in the answer booklet; there is no need to erase the work. Any work that has been written in the test booklet will not be scored.

- It is recommended that students respond to the test items in numerical order, mixing their responses to multiple-choice, short answer, and extended-response items. This is the most logical way to respond to the test items. Use the practice test answer booklet to help students understand where to write their answers and responses.

- Each multiple-choice question has four response choices, only one of which is correct. There is no penalty for guessing. The four response choices for each multiple-choice item are plausible, in a logical order, and consistently worded. Items usually ask direct questions. An item could use the expression *choose the best answer* or could be worded negatively, but this rarely occurs. Response choices such as *None of the above* or *All of the above* are not used.

- Since frequently made mistakes are often used as response choices, students should be encouraged to check their answers. Students should also be encouraged to read all response choices before selecting one.

- Students may use certain calculators (see page 37) and protractors for the mathematics test items. Students should be reminded not to bring any other helpers or manipulatives to the test sessions. The student will be given only a #2 pencil.

- Students will **not** be permitted to use reference materials (such as print or electronic forms of dictionaries, thesauruses or spell-check software) or tools other than writing instruments and those listed for the mathematics test. Modifications in test format and/or test administration procedures will be made to accommodate the needs of an individual student if such modifications are specified in the signed Individual Education Program (IEP).

- Charts, maps, and other materials in the classroom that could assist students with test items will be covered or removed during the test administration.

- The short-answer and extended-response items must be legible to be scored, but either print (manuscript) or cursive writing is permitted.

- All test material presented is well written and of interest to students.

- Reading and writing passages and test items avoid stereotyping, specific language, unfair representations, or other elements that might be disadvantageous to any person or group on the basis of gender, race, religion, culture, or disability.

- To familiarize students with the types of questions found on this test, a half-length practice test is available.

Writing

What can students and teachers expect on the Sixth-grade Proficiency Test in Writing?

The Sixth-grade Proficiency Test in Writing is defined by eight learning outcomes. These learning outcomes, based on Ohio's *Model Competency-Based Language Arts Program*, were developed by committees made up of Ohio citizens (educators and business members) through a consensus-building process.

For the Sixth-grade Proficiency Test in Writing, the student will be given one topic or stimulus which will direct two writing activities, exercises A and B. Each exercise is a separate mode or purpose for writing. Each mode will be one of the following: a summary, a fictional narrative, a personal experience narrative, a persuasive piece, an informational piece (a report), or communication (letter, invitation, thank-you note, letter to the editor, directions, or journal).

The test administrator will lead students through a script that will incorporate the language of the writing process: prewriting, writing, revising, and editing. The prewriting stage will contain the topic or stimulus (e.g., an idea or scenario described by the test administrator, a picture, or a piece of literature). The prewriting introduction will serve for both writing activities. Students will be asked to complete a prewriting activity which will not be scored. The lack of a student response to the prewriting activity will not lower a student's score.

The script encourages the student to continue the writing process by editing and revising. With each writing activity an editing checklist will be included that reminds the students of required features of writing: follow a clear organizational pattern; check spelling and punctuation; and use a variety of words.

The directions for the writing activities will encourage students to focus on a topic, using details that support the topic, and constructing an organized, natural response that flows and has a clear organizational pattern. Students will write their response to the topic or stimulus in a separate answer booklet. Topics have been developed in such a way that no group of students will be at a subject-related disadvantage.

Although students are provided four pages for each writing activity, it is not necessary for students to use all pages provided.

What are the sixth-grade learning outcomes in writing and what do they mean to students and teachers?

The learning outcomes define the proficiencies sixth-grade students are expected to possess and apply as a result of their learning experiences from kindergarten through February of the sixth-grade year. The eight outcomes are grouped into four strands:

- Content
- Organization
- Use of Language
- Writing Conventions

Content measures the student's ability to convey a message using supporting ideas and examples. *Organization* measures the student's ability to think logically and to present ideas clearly and effectively. *Use of Language* measures the student's ability to use expressive language appropriately, choosing words and phrases appropriate to a given purpose and a specific audience. *Writing Conventions* measures the student's ability to apply the mechanics of English to convey content successfully.

Each topic or stimulus (activity direction) will be constructed to elicit two responses that will include different purposes (modes) for writing. These modes are listed below. Students are encouraged to follow the instructions given for the mode or purpose for writing. The student's response may be any length but should be complete.

Summary—a piece of writing restating the topic by concisely listing the major idea(s). A summary does not list details. A summary is based on the topic. It does not add anything to the topic. A summary is written in the student's own words. Copying anything from the topic is not a summary.

Fictional Narrative—a piece of writing telling a story that is not true. The topic serves as the motivation for the writing.

Personal Experience Narrative—a piece of writing that tells a story based on the student's own

experiences. The story may be true or not true. The topic serves as the motivation for the writing.

Persuasive—a piece of writing that generally tries to convince the intended reader to agree with the writer. The topic serves as the motivation for the writing.

Informational—a piece of nonfiction writing that is a report. The topic serves as the motivation for the writing.

Communication:

Letter—a piece of writing in the form of a letter. The letter should be recognizable as a letter, i.e., a greeting, body, and closing are included. The topic serves as the motivation for the writing.

Invitation—a piece of writing in the form of a letter inviting someone to an event. The invitation may take the form of a letter or may take a structured approach, e.g., TO, WHERE, TIME, EVENT. If the invitation takes the form of a letter, the letter should be recognizable as a letter, i.e., a greeting, body, and closing are included. The topic serves as the motivation for the writing.

Thank-you Note—a piece of writing in the form of a letter thanking someone for something done for or given to the writer of the note. The thank-you note should be recognizable as a letter, i.e., a greeting, body, and closing are included. The topic serves as the motivation for the writing.

Letter to the Editor—a piece of writing in the form of a letter directed to the editor of a newspaper or magazine. The letter generally tries to persuade the editor to agree with the writer's point of view or informs the editor of an occurrence or information the writer believes the editor should know. The letter should be recognizable as a letter, i.e., a greeting, body, and closing are included. The topic serves as the motivation for the writing.

Directions—a piece of writing that explains how to do something, e.g., go somewhere, make something. The directions may be in paragraph form or given line by line. The topic serves as the motivation for the writing.

Journal—a piece of writing recounting the activities of a day, a month, or a period of years. The journal may be written in letter form or in paragraph form. The topic serves as the motivation for the writing.

Learning Outcomes

Given an assigned activity direction intended to elicit two of the preceding modes of writing, the student will use the writing process to make the intended message clear, as evidenced by the following outcomes:

STRAND I - CONTENT

1. **Focus on the topic with adequate supporting ideas or examples.**

STRAND II - ORGANIZATION

2. **Exhibit a logical organizational pattern that demonstrates a sense of flow and conveys a sense of completeness and wholeness.**

STRAND III -USE OF LANGUAGE

3. **Exhibit word choice appropriate to the subject, the purpose, and the intended audience.**

4. **Communicate clarity of thought.**

5. **Include sentences of varied length and structure.**

STRAND IV - WRITING CONVENTIONS

6. **Use complete sentences except where purposeful phrases or clauses are desirable.**

7. **Write legibly using cursive or manuscript.**

8. **Demonstrate correct usage, correct spelling of frequently used words, and correct punctuation and capitalization.**

How are the tests scored?

The scoring method used for the Sixth-grade Proficiency Test in Writing is called holistic scoring. Readers using this method consider the papers as a whole, using the individual characteristics of the rubric as a guide. They are looking for the integration of all four elements of good writing: content, organization, use of language, and writing conventions. Weaknesses in one area may be compensated for by strengths in another; however, high-scoring papers demonstrate strength in all four areas.

As writing samples are scored, a careful balance of these four categories is sought. Holistic scoring emphasizes the overall impression of the writing in keeping with the sense that "the whole is greater than the sum of its parts." The student's writing may contain errors in any of the four areas. However, the overall effect of the paper should not be limited by such errors.

The student's written responses to each writing activity are scored holistically by a reader trained specifically for this project. The scores for the two written responses from each student are then added together and reported to the school district. The actual papers themselves are not returned.

The rubric, or score-point description, adopted in the state of Ohio for evaluating sixth-grade student writing, is based on the eight learning outcomes listed previously and uses the numerical scale described below.

What is a rubric for holistic scoring?

The rubric is a *4-point* scale. This scale represents the different levels of writing proficiency demonstrated, based on the eight learning outcomes.

Scores are designed to be used in conjunction with illustrative rangefinder papers and are intended to describe characteristics of most papers at a particular score point. The aim is to determine the best fit; a paper at any given score point may not meet all characteristics.

Rubric

A *4-point* response focuses on the topic, clearly addresses the purpose (mode), and has ample supporting details. It has a logical organizational pattern that demonstrates a sense of flow and conveys a sense of completeness and wholeness. It uses language effectively by exhibiting word choices which are appropriate to the subject, purpose, and intended audience. It includes sentences of varied length and structure and exhibits the use of complete sentences except where purposeful phrases or clauses are used for effect. It demonstrates correct usage, punctuation, capitalization, and correctly spells commonly used words. Its writing style varies according to purpose.

A *3-point* response is related to the topic, generally addresses the purpose (mode), and has adequate supporting details. It has a logical order that demonstrates a sense of flow and a sense of wholeness and completeness, although some lapses may occur. It includes word choices which are appropriate to the subject, purpose, and intended audience. It includes sentences that are somewhat varied in length and type. For the most part, it exhibits the use of complete sentences except where purposeful phrases or clauses are used for effect. Some errors in sentence structure may occur, but they do not impede communication. It follows the

conventions of usage, punctuation, and capitalization, and correctly spells commonly used words. Any errors that occur do not impede communication. Its writing style generally varies according to purpose.

A *2-point* response demonstrates an awareness of the topic but may include extraneous or loosely related material. It demonstrates an attempt to address the purpose (mode) and includes some supporting details. It shows an attempt at an organizational pattern but exhibits little sense of flow or completeness. It has a limited and predictable vocabulary and makes word choices which may not show an awareness of audience, purpose, or subject. It contains errors in sentence structure and usage that limit its readability. It demonstrates some knowledge of capitalization, punctuation, and spelling of commonly used words. It contains an attempt to vary writing style according to purpose.

A *1-point* response is only slightly related to the topic and offers few supporting details. It may or may not attempt to address the purpose. It has little evidence of an organizational pattern. It has a limited or inappropriate vocabulary that obscures meaning and shows little or no awareness of audience, purpose, or subject. It demonstrates little knowledge of basic punctuation, capitalization, and the correct spelling of commonly used words. It contains errors in sentence structure and usage that impede its readability. It shows little or no attempt to vary writing style according to purpose.

An *N/S* (Not Scorable) is assigned if there is no response or if the response is unreadable, off topic, off task, illegible, or written in a language other than English.

Who are the readers?

Readers are employed by an independent scoring company that meets the rigorous standards set by the state for scoring of the sixth-grade proficiency tests. Prospective readers must hold a bachelor's degree, be able to write a satisfactory paper, provide references and/or proof of experience as a reader, and undergo a personal interview. In addition, readers must participate in training sessions to familiarize themselves with the expectations of student writing as defined in the rubric and as illustrated in rangefinder papers. That is, they read, discuss, and score Ohio rangefinder papers written on the writing activity they will be scoring. Readers for this project must qualify by scoring sets of unmarked papers with at least 80% agreement with the decisions made by the Ohio rangefinder committee. Calibration packets are used to check the consistency of readers throughout the scoring process. Readers are dismissed if they cannot maintain a degree of consistency on a daily basis. Table leaders carefully supervise readers as the scoring progresses.

Who are the Ohio rangefinder committee members and what are the rangefinder papers?

Ohio educators, including classroom teachers and representatives from the Ohio Department of Education, make up the rangefinder committee that reads student papers from the sixth-grade field test and chooses papers that represent each level of writing proficiency as defined in the rubric. Prior to scoring of the sixth-grade proficiency tests, the committee meets with representatives of the scoring company to read, score, and discuss student papers so that the contractor representatives have a clear idea of how Ohio teachers expect the papers to be scored. The rangefinder papers chosen are used to train readers and set standards to guide their scoring. Members of the rangefinder committee also travel to the scoring site to observe both the training of readers and the actual scoring of student writing.

What are some specific administration tips for the writing test?

- The test administrator, who could be the classroom teacher, will lead students through a script which will emphasize the language of the writing process—prewriting, writing, revising, and editing. The test administrator will read aloud the topic or stimulus. While students are working, the test administrator will only answer questions about procedures.

- A checklist for students to use to evaluate their writing is included in the test booklet. The checklist is based on the 4-point rubric.

- At the prewriting stage, students will use the test administrator's statements and comments in the script to focus their attention on the activity. Students will be provided with ample space for a prewriting activity in the test booklet. The prewriting activity will not be scored. Students who choose not to respond to the prewriting activity will not be penalized.

- Students will use pencil (#2) and will be informed that erasing and crossing out and other editing changes are acceptable. The writing sample must be legible to be scored, but either print (manuscript) or cursive writing is permitted.

Facts from the Sixth-grade Proficiency *Field Test*

Writing activities based on the writing learning outcomes were field tested in April 1995. While the number of students responding to each writing activity was limited, some general observations regarding student achievement can be made. Scored examples of the writing activities on the practice test will be available in the winter of 1996.

- Students performed best on exercises designed to elicit Narrative writing.
- Students' performance was lowest on exercises designed to elicit Summary writing.

For more information on the writing learning outcomes, see the Ohio *Model Competency-Based Language Arts Program.*

Reading

What can students expect on the Sixth-grade Proficiency Test in Reading?

The Sixth-grade Proficiency Test in Reading is defined by eighteen learning outcomes. These learning outcomes, based on Ohio's *Model Competency-Based Language Arts Program*, were developed by committees made up of Ohio citizens (educators and business members) through a consensus-building process. These learning outcomes have been identified from four strands in the State Board adopted model curriculum.

The items on the reading test are based on fiction, poetry, and nonfiction reading selections. Each form of the proficiency tests includes test items based on the selections and some embedded field-test items. There are five field-test items embedded in the reading test, making a total of 41 items, of which only 36 are counted to obtain the students' reading scores. These field-test items give ODE the potential to continue adding to the item bank for future test forms.

Each form will contain multiple-choice items, short-answer items, and extended-response items. The number of each type of item in a form will be determined by the reading selections in the form.

Table I
Reading Item Distributions

Strands	Multiple Choice	Short Answer	Extended Response	Totals
Fiction and Poetry				
Constructing/Examining Meaning (4)	4 – 12	1 – 3	0 – 1	5 – 16
Extending Meaning (5)	3 – 8	1 – 4	0 – 2	4 – 14
Nonfiction				
Constructing/Examining Meaning (4)	4 – 12	1 – 3	0 – 1	5 – 16
Extending Meaning (5)	3 – 8	1 – 4	0 – 2	4 – 14
Total number of items based on selection	24 – 28	7 – 9	2	36

( ) = Number of learning outcomes

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Multiple-choice items are used whenever a single, concise answer to a question is possible. Multiple-choice questions included on the Sixth-grade Proficiency Test in Reading emphasize critical thinking rather than factual recall. There is no penalty for guessing.

Open-ended items that require either a short phrase/sentence or an extended response give students the opportunity to demonstrate their ability to organize ideas and respond to what they have read. Each reading selection will have at least one short-answer or one extended-response item. In a reading test, it is important to have items that most directly and accurately reflect how readers use such processes as organizing ideas, analyzing and responding to text, and integrating text information with background knowledge.

Some of the open-ended items make use of graphic organizers of the type currently used in classrooms and textbooks. For example, a *wheel-type graphic* may be used to distinguish between major ideas and supporting ideas in an informational passage:

* What are the major oceans of the earth? In the boxes, name each of them and tell how they compare in size.

***Note:** The sample items used here to illustrate these types of graphic organizers are **not** included in the item bank.

A simple *two-column chart* may be used to compare two elements in a passage:

* How are the oceans of our planet like soup, according to the selection? Fill in the chart to show two ways they are alike.

Oceans	Soup

When items make use of these types of graphic organizers, instructions are spelled out clearly and often examples are given to show how to fill in the diagram or chart. This ensures that students who have had less experience than others with these types of devices will have an equal opportunity to succeed in responding to them.

What types of reading selections can students expect on the Sixth-grade Proficiency Test in Reading?

Reading selections that appear in the test come from published sources and may include poems, essays, short stories, novel/book excerpts, plays, pamphlets, instruction booklets, and newspaper and magazine articles. These fiction, poetry, and nonfiction selections cover a wide range of subject matter, are of appropriate difficulty for sixth-grade students, and include a variety of topics. Selection length ranges up to 750 words. Every test form contains 2-4 fiction/poetry selections and 2-4 nonfiction selections. The selections together total about 1,500 words, with a maximum of 2,000 words. Selection length will help to determine the number of questions for that selection. For example, a 200-word selection might be accompanied by five questions and a 700-word selection by nine questions.

***Note:** The sample items used here to illustrate these types of graphic organizers are **not** included in the item bank.

What are the sixth-grade learning outcomes in reading and what do they mean to students and teachers?

The learning outcomes define the proficiencies sixth-grade students are expected to possess and apply as a result of their learning experiences from kindergarten through February of the sixth-grade year. The eighteen outcomes are grouped into four strands:

- Constructing/Examining Meaning: Fiction
- Extending Meaning: Fiction
- Constructing/Examining Meaning: Nonfiction
- Extending Meaning: Nonfiction

Constructing Meaning refers to students' abilities to understand the overall meaning of what they read; for example, students are asked to summarize an article or a story. *Examining Meaning* refers to students' abilities to interpret what they read; for example, students are asked to analyze or to respond to a text. *Extending Meaning* refers to students' abilities to go beyond what they have read, for example, comparing and contrasting aspects of a text, or critiquing and evaluating a text.

The learning outcomes and related information about test content are provided on the following pages. Outcomes 1-9 are designed for fiction and poetry materials. Examples of fiction materials include excerpts from novels and short stories. Outcomes 10-18 are designed for nonfiction materials. Examples of nonfiction materials include passages from textbooks, newspapers, and magazine articles.

STRAND I - CONSTRUCTING/EXAMINING MEANING WITH FICTION SELECTIONS

Given a fiction or poetry text to read silently, students will demonstrate an understanding of text and elements of fiction or poetry by responding to items in which they:

1. **Analyze aspects of the text, examining, for example, characters, setting, plot, problem/solution, point of view, or theme.**

   This outcome focuses on analyzing such elements in a text as:
   - Characters: Individuals who play a part in the story
   - Setting: The location(s) and time(s) of the story
   - Plot: A series of episodes in which a problem is developed and resolved
   - Problem (or conflict): The central tension that drives the story
   - Solution (or resolution): The dissolving of tension at the end of the story
   - Point of view: The vantage point from which the author presents the story
   - Theme: The idea or message in a work of literature

2. **Summarize the text.**

   Summary is a higher-level skill in which learners pull together the essence of a text based on inferences, conclusions, and interpretations they have made. In summarizing a text, students are expected to identify a statement or produce a summary in their own words that reflects the entire content of the text.

3. **Infer from the text.**

   When students infer from a text, they use evidence from the text to grasp an important idea not directly stated in the text.

4. **Respond to the text.**

   Students respond to a text by relating it to personal experiences or feelings.

STRAND II - EXTENDING MEANING WITH FICTION SELECTIONS

Given a fiction or poetry text to read silently, students will demonstrate an understanding of text and elements of fiction or poetry by responding to items in which they:

5. **Compare and contrast aspects of the text, for example, characters or settings.**

   Students identify similarities and differences between/among text elements such as characters or settings.

6. **Critique and/or evaluate aspects of the text.**

   Students critique (discuss critically) and/or evaluate (examine and judge carefully) aspects of a fiction or poetry text. Typically this involves consideration of an author's choices in writing the text and careful judgment about those choices. For example, students might be asked to consider why a writer includes a particular image in a poem or why a writer tells a story from the point of view of a particular character. Is the poem or story more effective or more successful in achieving the author's purpose because the author made a certain choice?

7. **Select information for a variety of purposes, including enjoyment.**

   Students choose resource materials (print and other media, community resources, etc.) related to a selection for a stated purpose.

8. **Express reasons for recommending or not recommending the text for a particular audience or purpose.**

   Students judge the appropriateness of a text for a particular audience or purpose.

9. **Explain how an author uses contents of a text to support his/her purpose for writing.**

   Students display an understanding of an author's purpose for writing and of how an author uses something in a text to support that purpose.

STRAND III - CONSTRUCTING/EXAMINING MEANING WITH NONFICTION SELECTIONS

Given a nonfiction text to read silently, students will demonstrate an understanding of text and elements of nonfiction by responding to items in which they:

10. Analyze the text, examining, for example, author's use of comparison and contrast, cause and effect, or fact and opinion.

This outcome focuses on analyzing such elements in a nonfiction text as comparison and contrast, cause and effect, or fact and opinion.

11. Summarize the text.

Summary is a higher-level skill in which the student pulls together the essence of a text based on inferences, conclusions, and interpretations they have made. In summarizing a text, students are expected to identify a statement or produce a summary in their own words that reflects the entire content of the text.

12. Infer from the text.

When students infer from a text, they use evidence from the text to grasp an important idea not directly stated in the text.

13. Respond to the text.

Students respond to a text by relating it to personal experiences or feelings.

STRAND IV - EXTENDING MEANING WITH NONFICTION SELECTIONS

Given a nonfiction text to read silently, students will demonstrate an understanding of text and elements of nonfiction by responding to items in which they:

14. Compare and/or contrast aspects of the text.

Students identify similarities and differences between/among text elements other than elements the author has compared outright.

15. Critique and evaluate the text for such elements as organizational structure and logical reasoning.

Students critique (discuss critically) and/or evaluate (examine and judge carefully) aspects of a nonfiction text. Typically this involves consideration of an author's choices in writing the text, for example, choices having to do with organization or logical reasoning, and careful judgment about those choices. For example, students might be asked to consider why a writer organized a selection in a particular way. Is the selection more effective or more successful in achieving the author's purpose because of this organization?

16. Select information from a variety of resources to support ideas, concepts, and interpretations.

Students choose resource materials (print and other media, community resources, etc.) to support ideas, concepts, and interpretations related to a selection.

17. Express reasons for recommending or not recommending the text for a particular audience or purpose.

Students judge the appropriateness of a text for a particular audience or purpose.

18. Explain how an author uses contents of a text to support his/her purpose for writing.

Students display an understanding of an author's purpose for writing and of how an author uses something in a text to support that purpose.

How are the tests scored?

Each multiple-choice item on the test is worth one point; each short-answer item is worth two points; and each extended-response item is worth four points.

Conventions of writing (sentence structure, word choice, usage, grammar, spelling, and mechanics) will not affect the scoring of short-answer or extended-response items unless there is interference with the clear communication of ideas.

Short-answer items will be scored on a *2-point* scale based on these general scoring guidelines:

> A *2-point* response is complete and appropriate. It demonstrates a thorough understanding of the reading selection. It indicates logical reasoning and conclusions. It is accurate, relevant, comprehensive, and detailed.
>
> A *1-point* response is partially appropriate. It contains minor flaws in reasoning or neglects to address some aspect of the item or question. It is mostly accurate and relevant but lacks comprehensiveness. It demonstrates an incomplete understanding of the reading selection or inability to make coherent meaning from the text.
>
> A *0* is assigned if the response indicates no understanding of the reading selection or item.

Extended-response items will be scored on a *4-point* scale based on these general scoring guidelines:

> A *4-point* response provides extensive evidence of the kind of interpretation called for in the item or question. The response is well-organized, elaborate, and thorough. It demonstrates a complete understanding of the whole work as well as how parts blend to form the whole. It is relevant, comprehensive, and detailed, demonstrating a thorough understanding of the reading selection. It thoroughly addresses the important elements of the question. It contains logical reasoning and communicates effectively and clearly.

A *3-point* response provides evidence that an essential interpretation has been made. It is thoughtful and reasonably accurate. It indicates an understanding of the concept or item, communicates adequately, and generally reaches reasonable conclusions. It contains some combination of the following flaws: minor flaws in reasoning or interpretation, failure to address some aspect of the item, or the omission of some detail.

A *2-point* response is mostly accurate and relevant. It contains some combination of the following flaws: incomplete evidence of interpretation, unsubstantiated statements made about the text, an incomplete understanding of the concept or item, lack of comprehensiveness, faulty reasoning, or unclear communication.

A *1-point* response provides little evidence of interpretation. It is unorganized and incomplete. It exhibits decoding rather than reading. It demonstrates a partial understanding of the item but is sketchy and unclear. It indicates some effort beyond restating the item. It contains some combination of the following flaws: little understanding of the concept or item, failure to address most aspects of the item, or inability to make coherent meaning from text.

A *0* is assigned if the response shows no understanding of the reading selection or item.

Facts from the Sixth-grade Proficiency *Field Test*

Test items based on the reading learning outcomes were field tested in April 1995. While the number of students responding to each test item was limited, some general observations regarding student achievement can be made. The summary below is based upon review of student performance on multiple-choice items only. Scored examples of short-answer and extended-response items found on the practice test will be available in the winter of 1996.

- Student performance was highest on multiple-choice items measuring outcomes 10, 16, and 17.
- Student performance was lowest on multiple-choice items measuring outcomes 1, 9, 14, and 18.

For more information on the reading learning outcomes, see the Ohio *Model Competency-Based Language Arts Program.*

Mathematics

What can students expect on the Sixth-grade Proficiency Test in Mathematics?

The Sixth-grade Proficiency Test in Mathematics is defined by twenty-four learning outcomes. These learning outcomes, based on Ohio's *Model Competency-Based Mathematics Program*, were developed by committees made up of Ohio citizens (educators and business members) through a consensus-building process. These learning outcomes have been identified from the eight strands in the State Board adopted model curriculum.

Each form of the proficiency tests includes some embedded field test items. There are 5 field test items embedded in the mathematics test, making a total of 51 items, of which only 46 are counted to obtain the students' mathematics scores. These field test items give ODE the potential to continue adding to the item bank for future test forms.

Each form will contain 34 multiple-choice items, 10 short-answer items, and 2 extended-response items. Altogether, the 34 multiple-choice items are worth 34 points, the 10 short-answer items are worth 20 points, and the 2 extended-response items are worth 8 points, making a total of 62 points. In all, the multiple-choice items account for about 55% of the total score; short-answer items, 32%; and extended-response items, 13%.

Table II
Mathematics Test Distributions

Type	Number of Items	Total Points	Total Percent
Multiple Choice	34	34	55
Short Answer	10	20	32
Extended Response	2	8	13
TOTAL	46	62	100

Short-answer items might ask students to carry out a calculation and write an answer; to examine a situation and describe why one alternative or another was correct; to measure or draw a figure; to

complete a table; or to provide a numerical, verbal, or visual representation of their solution.

Extended-response items require students to construct their own responses and to demonstrate problem solving, mathematical reasoning, and application of concepts and skills. Extended-response items require students to communicate their understanding of the problem situation, verify and interpret results with respect to the problem, and justify their answers and solution processes. Each strand has at least one short-answer or one extended-response item. Since credit for answers is usually based on demonstrated understanding of concepts, students should be encouraged always to explain their answers, when asked to do so. The more understanding that a student demonstrates, the more credit may be assigned.

Table III
Mathematics Item Distributions

Strands	Multiple Choice	Short Answer	Extended Response	Totals
I. Patterns, Relations, and Functions (2)	1-4	1-2	0-1	2-7
II. Problem-Solving Strategies (3)	1-7	1-2	0-1	2-10
III. Numbers and Number Relations (5)	2-10	1-2	0-1	3-13
IV. Geometry (2)	2-7	1-2	0-1	3-10
V. Algebra (3)	1-6	1-2	0-1	2-9
VI. Measurement (3)	2-9	1-2	0-1	3-12
VII. Estimation and Mental Computation (2)	1-4	1-2	0-1	2-7
VIII. Data Analysis and Probability (4)	2-8	1-2	0-1	3-11
Total Number of Items	34	10	2	46
Total Number of Points	34	20	8	62

( ) = number of learning outcomes

A sixth-grade level of literacy and competency requires understanding of concepts, recall of basic mathematical facts, performance of mathematical procedures, and application of concepts and skills to problem-solving situations. Test items assess the learning outcomes at one of three levels of understanding. These levels are described below.

Conceptual Understanding (approximately 40% of the items on the test)

Items in this category test the student's ability to recognize examples and counterexamples, use various representations of concepts, apply facts and definitions, compare and contrast related concepts and principles, judge the characteristics of solutions, and interpret charts and tables.

Knowledge and Skills (approximately 20% of the items on the test)

Items in this category test the student's knowledge of important basic terms, facts, methods, procedures, and skills. This includes the ability to recall important definitions and relationships; read graphs and tables; and perform rounding, ordering, and estimating operations.

Application and Problem Solving (approximately 40% of the items on the test)

Items in this category test the student's ability to use reasoning in new situations. This includes the ability to translate between pictorial and mathematical representations of a problem; determine the sufficiency and consistency of data; use strategies and data to solve problems; and use spatial, inductive, and deductive reasoning.

What are the sixth-grade learning outcomes in mathematics and what do they mean to students and teachers?

The learning outcomes define the proficiencies sixth-grade students are expected to possess and apply as a result of their learning experiences in kindergarten through February of the sixth-grade year. The twenty-four outcomes are grouped into eight strands:

- patterns, relations, and functions
- problem-solving strategies
- numbers and number relations
- geometry

- algebra
- measurement
- estimation and mental computation
- data analysis and probability

The learning outcomes and related information about test content are provided on the following pages. The information included in this guide applies to most test items: however, the descriptions may not cover all items that could be used on the tests.

STRAND I - PATTERNS, RELATIONS, AND FUNCTIONS

1. **Apply the relation between doubling the side of a regular figure and the corresponding increase in area.**

   Test items will involve 3, 4, or 6-sided regular polygons. (A regular figure is a figure with all sides congruent and all angles congruent.) The regular polygon may be illustrated on a grid or a grid may be provided. Test items will include only two-dimensional regular figures (i.e., square, equilateral triangle, and hexagon). Test items may include illustrations of squares and triangles. Items that involve hexagons will include an illustration of a hexagon on a grid. Students may be asked to explain how the area of a regular polygon is affected by an increase in the length of its sides.

2. **Determine the rule, identify missing numbers, and/or find the *n*th term in a sequence of numbers or a table of numbers involving one operation or power.**

   Students need to be able to recognize, describe, and extend a variety of patterns and to use patterns to make generalizations and predictions. Test items require the student to continue a pattern by identifying or supplying a missing element(s) and/or describing the rule. Students will observe the number patterns in either a sequence of numbers or a table of number pairs.

   A number pattern can include whole numbers, fractions, and decimal numbers, or numbers with exponents. The number pattern used in a sequence of numbers, or in a table, may be a combination of addition, subtraction, multiplication, or division. Patterns involving exponential numbers will involve only one operation.

STRAND II - PROBLEM-SOLVING STRATEGIES

3. Apply appropriate notations and methods for symbolizing the problem statement and solution process.

This outcome emphasizes communicating mathematically and applying mathematics productively. Students need to be able to represent problem-solving situations using appropriate drawings, graphs, tables, number phrases or sentences, mathematical symbols, and/or words. Problem situations or operations are often presented in worded format and may be accompanied by an illustration, table, or chart. The use of notations and methods for symbolizing a problem statement do not include the use of inequalities.

4. Identify needed and given information in a problem situation as well as irrelevant information.

Students will examine problems to determine whether sufficient information has been given, what information has been included that is not needed, and what additional information may be needed. Problems are often in worded format and may be accompanied by an illustration, table, or chart.

5. Validate and/or generalize solutions and problem-solving strategies.

Problems that assess this learning outcome may have students demonstrate their understanding of different problem-solving strategies that require critical thinking and the ability to generalize. These include:

a) finding and extending a pattern and then applying the rule to a problem situation,
b) drawing conclusions about a large set of data by using a sample, or
c) solving a simpler problem (with smaller numbers) and then applying the solution to a more complicated problem.

Other problems that assess this learning outcome may involve generalizing, studying the solution process, checking or verifying the correctness of a solution, finding another way to solve the problem, guessing and checking, and making a table. In these cases, the focus of the test item is not on finding the answer to a specific problem, but on reexamining the problem, the solution, or the answer.

STRAND III - NUMBERS AND NUMBER RELATIONS

6. Compute with whole numbers, fractions, and decimals.

Items will focus on understanding and applying operations in problem situations. Students will need to determine what computations are needed to solve problems given in worded format and compute the answers. The following parameters are used for computations involving whole numbers, fractions and decimals.

a) Addition and subtraction of whole numbers include four-digit numbers.
b) Multiplication of whole numbers includes four-digit factors.
c) Division of whole numbers includes two-digit divisors.
d) Addition and subtraction of fractions include like fractions (those with the same denominators) and unlike fractions (those with different denominators).
e) Fractions include mixed numbers.
f) Decimals up to the thousandth place may be used.

The concepts of improper fractions, mixed numerals, least common denominators, and comparison and simplification of fractions are prerequisites for computation with fractions.

7. Find equivalent fractions.

Items that address this outcome will reflect and permit a variety of models and strategies and will not be solely computation-oriented. Test items may include fraction models and other pictorial representations of fractions to assess the student's understanding of equivalent fractions.

8. Change freely between fractions and decimals.

Fractions and/or decimals are presented in real-life situations or contexts. The problem situations require students to change freely between fractional and decimal notation. Illustrations of fraction models and other pictorial representations may be provided for some items.

9. Order combinations of whole numbers, fractions, and decimals by using the symbols $<$, $\leq$, $>$, $\geq$, and $=$ and/or by placing them on a number line.

Developing an awareness of the relative sizes of fractions and decimals and ordering fractions and decimals are essential to the understanding and application of concepts and operations involving fractions and decimals. Test items may require the use of the number line or the use of the symbols $<$, $>$, $\leq$, $\geq$, and $=$ for comparing and ordering combinations of whole numbers,

fractions, and decimals. When appropriate, illustrations accompany test items.

10. Use ratios and proportions in a wide variety of applications.

Test items may have students apply ratios and proportions to real-life situations and sets of numbers such as sports statistics and scale drawings. Given a problem situation or setting, students may be asked to determine whether two ratios form a proportion and explain why or why not. Test items will include pictorial percentage models and illustrations when appropriate. Ratios will be expressed in one of three ways, i.e., 2 to 4 or 2:4 or $\frac{2}{4}$.

STRAND IV - GEOMETRY

11. Visualize and show the results of rotation, translation, reflection, or stretching of geometric figures.

Rotation, translation, reflection, and stretching are four ways geometric figures can be changed or transformed. The following list describes each kind of transformation:

a) rotation: the image of a figure moved through an angle about a point on a plane
b) reflection: the mirror image of a figure about a line of symmetry or a point on a plane
c) translation: a slide image of the original figure
d) stretching (also called expansion or contraction): the image of a figure having a size change of a particular magnitude. For example, the image of (x, y) is (kx, ky) with a size change of magnitude k.

Test items may have students identify a transformation or draw a particular transformation of a given figure on a grid or graph. (Students will not be asked to define these terms.) Students may be asked to use ordered pairs to identify or label the vertices of the figure drawn.

12. Recognize, classify, and/or use characteristics of lines and simple two-dimensional figures including circles; and apply models and properties to characterize and/or contrast different classes of figures including three-dimensional figures.

Students should be able to identify, describe, compare, and classify lines that are parallel, intersecting, or perpendicular. Test items may have students recognize, classify, compare, and apply the characteristics or properties of simple plane and solid figures, including prisms, pyramids, cones, cylinders, and spheres.

Students will not be required to define terms; however, recognition and use of terminology, models, characteristics, and properties is expected. These may include terms associated with and visual representations of lines (e.g., parallel, perpendicular, intersecting); two-dimensional figures (e.g., diagonals, sides, quadrilaterals such as squares, rectangles, rhombuses, parallelograms); three-dimensional figures (e.g., bases, faces, edges, rectangular and triangular prisms and pyramids).

STRAND V - ALGEBRA

13. Use the distributive property in arithmetic computations.

Test items may assess the student's ability to use the distributive property in arithmetic computations or may involve a problem situation in which students apply the distributive property to the solution of the problem.

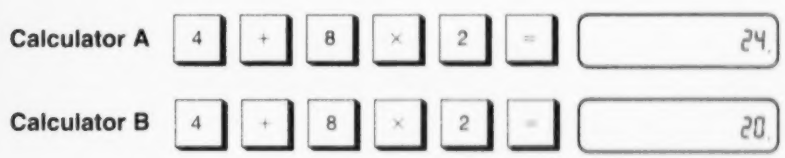
At this grade level, the distributive property will apply to whole numbers, decimals, fractions (and mixed numbers), but not to positive or negative numbers.

Students will not be expected to know or apply the distributive property of division over subtraction at this grade level, e.g., $252 \div 7 = (280 - 28) \div 7 = (280 \div 7) - (28 \div 7)$.

14. Explain and reflect differences between calculators with arithmetic logic and calculators with algebraic logic when symbolizing a keying sequence and in the display as each key is pressed.

Assessing the students' understanding of the differences between calculators with arithmetic logic and calculators with algebraic logic is the focus of items developed for this outcome. Each item will include an illustration of a keying sequence and what is displayed on the calculator as a result of the keying sequence.

Each digit or operation in the keying sequence is represented as a separate entry or step. The following are examples of how a keying sequence and resulting display may be illustrated in a test item:



Note: Calculator A illustrates arithmetic logic as each operation was performed when the operation key was pressed; i.e., added 8 to 4 and multiplied sum by 2. Calculator B illustrates algebraic logic as operations were performed following the order of operations when the "=" key was pressed; i.e., multiplied 8 by 2 and then added 4 to that product.

Students may be asked to use this information to identify the type of logic represented or used in each keying sequence and/or to apply the information to a problem situation. Students may be asked to determine the resulting display for a keying sequence for a calculator with arithmetic and/or a calculator with algebraic logic or to identify the order in which the operations will be performed in a given keying sequence when a calculator with a specified type of logic is used. An understanding of order of operations is *essential*.

Students may use certain calculators on the Sixth-grade Proficiency Test in Mathematics. See page 37 for examples of acceptable and unacceptable calculators.

15. Use variables to describe arithmetic processes, to generalize arithmetic statements, and to generalize a problem situation.

This outcome emphasizes recognizing and/or using variables in problem-solving situations and mathematical phrases and equations as statements. Students may be given a mathematical sentence such as "Six less than some number is equal to ten," and may be asked to identify the phrase or equation represented by this sentence.

STRAND VI - MEASUREMENT

16. Determine perimeters, areas, and volumes of common polygons, circles, and solids using counting techniques or formulas.

Items may require students to find the perimeter, area, or volume of two-dimensional figures (triangles, squares, rectangles, parallelograms, rhombuses, trapezoids, circles) and three-dimensional figures (cubes, prisms, and pyramids). Other items may require students to find the surface area of three-dimensional figures having square, rectangular, or triangular faces (e.g., cubes, rectangular prisms, and pyramids).

Formulas will be provided for volumes and areas of solids, circles, and polygons that are not squares or rectangles. Students will need to be able to find the area of a square or rectangle without a formula being provided in the item.

17. Convert, compare, and compute with common units of measure within the same measurement system.

Students will need an understanding of the relative size of common units of measure for length, capacity, weight, and time. Items may require conversion and/or computations involving units within the same measurement system. Conversion factors may be given for some items; for example, an item requiring conversions between feet and miles.

Units are those within the U.S. standard system (e.g., inch, foot, yard, mile; fluid ounce, cup, pint, quart, gallon; ounce, pound, ton; and second, minute, hour, day, week, year) and metric system (e.g., millimeter, centimeter, decimeter, meter, kilometer; milliliter, liter, kiloliter; and milligram, gram, kilogram).

18. Measure angles with a protractor.

Students need to be able to use a protractor to measure angles. Students may be asked to draw a figure and then measure its angles. Measurements must be made to the nearest whole degrees.

Recognition and use of standard labeling methods and terminology related to angles is expected. Terms may include right angle, acute angle, and obtuse angle. Students may use protractors on the Sixth-grade Proficiency Test in Mathematics.

STRAND VII - ESTIMATION AND MENTAL COMPUTATION

19. Apply appropriate strategies to find estimates of sums, differences, products, and quotients of whole numbers and determine whether the estimate is greater than or less than the exact result.

Items for this learning outcome may be completed using any of a number of effective estimation strategies. The most commonly used strategies used in estimating sums, differences, products, and quotients include:

a) front-end estimation strategy (uses front-end digits to obtain an initial estimate and may make adjustments to refine estimate.)

b) rounding strategy including flexible rounding (involves rounding numbers, computing with rounded numbers, and sometimes includes an adjustment step. The purpose of the rounding is to produce mentally manageable numbers. Flexibility in method of rounding is needed to fit the particular situation, operation, and numbers involved.)

c) compatible numbers strategy (looks at all numbers involved in the problem and changes or rounds each number so it can be paired usefully with another number. The strategy also involves flexible rounding process to find numbers that easily "fit together" and are easy to manipulate mentally.)

d) clustering strategy (used when a group of numbers cluster around a common value, a reasonable group average determined by selecting a convenient multiple around which all the data cluster and multiplying it by the total number of numbers in the group.)

e) special number strategies (looking for numbers that are near "special numbers" such as powers of ten, common decimals and fractions that are easy to compute mentally and changing the existing problem into a new form that will have an approximately equivalent answer.)

Students may be asked to describe their estimate in relation to the exact result.

20. Estimate the sum, difference, product, or quotient of decimal numbers by rounding, and the sum, difference, or product of fractions and/or mixed numbers by rounding the fractions to 0, $\frac{1}{2}$, or 1.

Items testing this outcome require the student to round decimal numbers to estimate sums, differences, products, or quotients. Other test items may require the student to round fractions to 0, $\frac{1}{2}$, or 1 to estimate the sum, difference, or product of fractions and/or mixed numbers.

Items focus on extending estimation strategies to situations involving decimals and fractions. Students will be expected to apply strategies using rounding and/or special numbers to make estimates.

Students will be expected to give an estimate when asked and not give the actual computation. Giving the exact answer and not the estimate will be considered incorrect.

STRAND VIII - DATA ANALYSIS AND PROBABILITY

21. Collect data, create a table, picture graph, bar graph, circle graph, or line graph and use them to solve application problems.

Items for this outcome emphasize the construction and/or use of a table, chart, or graph to record and sort information. Students may need to construct a table or graph, determine an appropriate scale for an axis for a specific graph, or to analyze the completeness and accuracy of a table or graph for a given set of data. Some items require students to use the information on the constructed or given table or graph to solve an application problem.

22. Read, interpret, and use tables, charts, maps, and graphs to identify patterns, note trends, and draw conclusions.

This outcome tests the student's ability to read and interpret tables, charts, maps, or graphs; note patterns; predict trends; or draw conclusions. Test items may include tables, charts, picture graphs, bar graphs, circle graphs, and line graphs.

23. Apply the concept of average and calculate the arithmetic mean and mode of a given set of numbers.

Test items will have students find the arithmetic mean or mode in a problem situation. In the test items, the word *average* refers to the *arithmetic mean*, which is the sum of a group of numbers that is divided by the number of addends. (Some people use the word *average* as a generic term to refer to all measures of central tendency, i.e., mean, median, and mode.) The *modes* are the number(s) that occur(s) most often in a data set. (It is possible to have more than one mode.)

24. Make predictions of outcomes of experiments based upon theoretical probabilities and explain actual outcomes.

Students should be able to apply their knowledge and understanding of probability to determine simple experimental probabilities and explain actual outcomes. Students should be able to express a probability as a fraction or describe which event is more likely or less likely to happen in a problem situation. Students should also be able to interpret probabilities in terms of percents, e.g., explain what the weather report means by the sentence, "There is a 70% chance of rain."

Test items may include illustrations such as tree diagrams, charts, tables, lists, or pie graphs. When appropriate, the items will include pictorial representations.

Are students allowed to use calculators?

Students are allowed and encouraged to use certain calculators on the mathematics test of the Ohio Sixth-grade Proficiency Tests. Items are designed to be calculator neutral; that is, using a calculator will not give an advantage.

Test security requires that certain restrictions be placed upon the capabilities and types of calculators that may be used by students on the test. Graphing calculators and calculators with certain word processing capabilities are **not** allowed.

Calculators with any of the following capabilities **cannot** be used:

- graphing capabilities
- large programmable (100 steps or more)
- tape or paper outputs
- spreadsheet managers
- word processors, word input or storage
- dictionary or thesaurus
- electronic references, organizers, personal planners, or travel organizers
- language usage, foreign language translation
- spelling/spell check
- telephone dialers
- laptop or hand-held computers

Acceptable calculators include most four-function calculators and scientific calculators without graphing capabilities.

This is a limited sampling for illustrative purposes only and not a complete or comprehensive listing.

A few examples of **acceptable** calculators include:

Casio	**Sharp**	**Texas Instruments**	**Hewlett Packard**
FX-82 series	ELE300	TI-108	HP20S
FX-115 series	EL-509	Math Mate	
FX-250D series	EL-520	Math Explorer	**Radio Shack**
FX-300 series	EL-531	Math Explorer Plus	EC-4008
FX-570 series	EL-546	TI-25	
FX-991 series		TI-30 series	
		TI-60	

A few examples of **unacceptable** calculators include:

Casio	**Sharp**	**Hewlett Packard**
FX-4500 series	EL-506	HP 48G
FX-5000 series	EL-9300	
FX-6000 series		**Radio Shack**
FX-7000 series	**Texas Instruments**	EC-4031
FX-9800G	TI-80 series	EC-4032
	TICBL	

Calculators with fraction capabilities (e.g., Casio FX-115, Sharp ELE300, and TI Math Explorer) are **acceptable**.

How are the tests scored?

Each multiple-choice item on the test is worth one point; each short-answer item is worth two points; and each extended-response item is worth four points. Altogether, the thirty-four multiple-choice items are worth 34 points; the ten short-answer items are worth 20 points; and the two extended-response items are worth 8 points. The total test score is 62 points. (See Table II on page 25.)

Conventions of writing (sentence structure, word choice, usage, grammar, spelling, and mechanics) will not affect the scoring of short-answer or extended-response items, unless there is interference with the clear communication of ideas.

Short-answer items will be scored on a *2-point* scale based on these general guidelines:

> A *2-point* response shows complete understanding of the concept or task, logical reasoning and conclusions, and correct set up and/or computations.
>
> A *1-point* response contains minor flaws in reasoning, neglects to address some aspect of the task, or contains a computational error.
>
> A *0* is assigned if the response indicates no mathematical understanding of the concept or task.

Extended-response items will be scored on a *4-point* scale based on these general guidelines:

> A *4-point* response contains an effective solution. It shows complete understanding of the concept or task and thoroughly addresses the points relevant to the solution. It contains logical reasoning and valid conclusions, communicates effectively and clearly through writing and/or diagrams, and includes adequate and correct computations and/or set up when required. It may go beyond the requirements of the item.
>
> A *3-point* response contains minor flaws. Although it indicates an understanding of the concept or item, communicates adequately through writing and/or diagrams, and generally reaches reasonable conclusions, it contains minor flaws in reasoning and/or computation, or neglects to address some aspect of the item.
>
> A *2-point* response indicates gaps in understanding and/or execution. It contains some combination of the following flaws: an incomplete understanding of the concept or item, failure to address some points relevant to the solution, faulty reasoning, weak conclusions, unclear communication in writing and/or diagrams, or a poor understanding of relevant mathematical procedures or concepts.

A *1-point* response indicates some effort beyond restating the item or copying given data. It contains some combination of the following flaws: little understanding of the concept or item, failure to address most aspects of the item or solution, major flaws in reasoning that led to invalid conclusions, a definite lack of understanding of relevant mathematical procedures or concepts, or it omits significant parts of the item and solution or response.

A *0* is assigned if the response indicates no mathematical understanding of the concept or item.

Facts from the Sixth-grade Proficiency *Field Test*

Test items based on the mathematics learning outcomes were field tested in April 1995. While the number of students responding to each test item was limited, some general observations regarding student achievement can be made. The summary below is based upon review of student performance on multiple-choice items only. Scored examples of short-answer and extended-response items found on the practice test will be available in the winter of 1996.

- Student performance was highest on multiple-choice items measuring outcomes 6, 11, 22, and 23.
- Student performance was lowest on multiple-choice items measuring outcomes 1, 9, 13, and 17.

For more information on the mathematics learning outcomes, see the Ohio *Model Competency-Based Mathematics Program*.

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Citizenship

What can students expect on the Sixth-grade Proficiency Test in Citizenship?

The Sixth-grade Proficiency Test in Citizenship is defined by twenty-two learning outcomes. These learning outcomes, based on Social Studies: *Ohio's Model Competency-Based Program*, were developed by a committee of Ohio citizens (educators and business members) through a consensus-building process. These learning outcomes are drawn from each of the six strands in the State Board adopted model curriculum.

Each form of the proficiency tests includes some embedded field test items. There are 5 field test items embedded in the citizenship test, making a total of 51 items, only 46 of which are counted to obtain the students' citizenship scores. These field test items give ODE the potential to continue adding to the item bank for future test forms.

Each form contains 34 multiple-choice items, 10 short-answer items, and 2 extended-response items. Altogether, the 34 multiple-choice items are worth 34 points, the 10 short-answer items are worth 20 points, and the 2 extended-response items are worth 8 points, making a total of 62 points. In all, the multiple-choice items account for about 55% of the total score; short-answer items, 32%; and extended-response items, 13%.

Table IV
Citizenship Test Distributions

Type	Number of Items	Total Points	Total Percent
Multiple Choice	34	34	55
Short Answer	10	20	32
Extended Response	2	8	13
TOTAL	46	62	100

Short-answer items typically ask students to explain a conclusion, provide examples, complete a chart, interpret information, or provide a rationale for an answer they have chosen. Extended-response items might ask students to interpret information from a 3-8 line paragraph on a specific topic, reach a conclusion and justify that conclusion, or provide examples. Since credit for answers is usually based on demonstrated understanding of concepts, students should be encouraged always to explain their answers, when asked to do so. The more understanding that a student demonstrates, the more credit may be assigned. Each strand has at least one short-answer or one extended-response item.

Table V
Citizenship Item Distributions

Strands	Multiple Choice	Short Answer	Extended Response	Totals
I. American Heritage (4)	5-9	1-3	0-1	7-10
II. People in Societies (3)	4-8	1-3	0-1	5-8
III. World Interactions (4)	4-7	1-3	0-1	5-7
IV. Decision Making and Resources (4)	5-8	1-3	0-1	6-9
V. Democratic Processes (3)	4-8	1-3	0-1	5-8
VI. Citizenship Rights and Responsibilities (4)	4-7	1-3	0-1	5-7
Total Number of Items	34	10	2	46
Total Number of Points	34	20	8	62

( ) = number of learning outcomes

What are the sixth-grade learning outcomes in citizenship and what do they mean to students and teachers?

The learning outcomes define the proficiencies that sixth-grade students are expected to possess and apply as a result of their learning experiences from kindergarten through February of the sixth-grade year. The twenty-two learning outcomes are grouped into six strands:

- American Heritage
- People in Societies
- World Interactions
- Decision Making and Resources (previously named Resource Allocation)
- Democratic Processes
- Citizenship Rights and Responsibilities

The learning outcomes and related information about test content are provided below. The information included in this guide applies to most test items; however, the descriptions might not cover all items that could be used on the tests.

STRAND I - AMERICAN HERITAGE

Items in the American Heritage strand ask questions related to the student's understanding of chronology and historical relationships. *Specific chronological events are provided as part of the test items.* Items in this strand also examine various sources of information about historical topics. Some prior, but not extensive, knowledge of events and people is needed.

1. **Demonstrate knowledge of and ability to think about the relationship among events:**

   (a) group significant individuals by broadly defined historical eras,
   (b) utilize multiple-tier time lines.

Items addressing this learning outcome refer to the significance of individuals or historical events in the context of other individuals or events and various time periods. Significance is not limited to famous individuals, but can reflect the contributions of ordinary people as well. *Information about significant individuals is included as part of the test items.*

The ability to identify broadly defined historical eras, as called for in *1a*, is important for developing a sense of chronology using periodization. *The criteria defining historical eras will be included as part of the test items.* Students could be asked to examine a brief narrative, time line, or list of events and select individuals or groups of individuals that fit in a particular era. Students could also be asked to identify what era encompassed the activities of particular individuals or groups.

Some items for *1a* and all of the items for *1b* will require students to use multiple-tier time lines. A multiple-tier time line is a time line that utilizes two or more rows of events, each row representing a different set of subjects or topics occurring during the period under study. An example would be a time line that associated the reigns of French kings with advances in arts and sciences throughout France. Time lines use B.C. and/or A.D. dates.

Items for *1b* could ask the students to place significant individuals or events on a time line. Students could be asked to identify which individuals and/or events would be appropriate to include on a given time line. Students could also be asked to explain connections between events on a time line.

2. **Utilize a variety of resources to consider information from different perspectives about North America:**

   (a) identify the central idea an historical narrative attempts to address,
   (b) inquire into the relative credibility of sources.

Students need to know how to analyze information from a variety of sources. Source materials could include both primary and secondary materials. Primary materials consist of firsthand accounts created by people who were present at the time an event took place. Secondary materials are accounts created after an event has taken place by people who were not present at the time of the event.

Items for *2a* require students to distinguish the main idea of a passage. Items for *2b* require students to analyze the reliability of views contained in different statements or documents.

3. **Identify significant individuals from the past in North America and explain their contributions to the cultural heritage of the United States.**

As explained for the first student outcome, significance is not limited to famous individuals, but can reflect the contributions of ordinary people as well. *Relevant information about significant individuals is included as part of the test items.* Students will be provided passages containing information about people from North America. They could be asked to explain how specific individuals have affected the way in which the American people live today or to select a given contribution that is supported by the information provided.

4. **Identify a significant individual from a region of the world other than North America and discuss cause-and-effect relationships surrounding a major event in the individual's life.**

Students are asked to identify cause-and-effect relationships by using information found in a narrative. Students could be asked to explain what a particular cause-and-effect relationship is or to select a given relationship that is supported by the information provided. *Relevant information about significant individuals is included as part of the test items.*

STRAND II - PEOPLE IN SOCIETIES

Items in the People in Societies strand ask questions pertaining to cultural groups. The phrase *cultural group* refers to a number of individuals sharing unique characteristics (e.g., race, ethnicity, national origin, and religion). The items pertain to the attributes, experiences, and contributions of such groups.

5. **Compare the gender roles, religious ideas, or class structures in two societies.**

In pursuing this outcome students will be presented with information to examine concerning gender roles, religious ideas, and class structures in various world societies, both past and present. Students could be asked to identify similarities or differences in characteristics of different societies. They could be asked to explain situations based upon characteristics of different societies. Students could also be presented with characteristics in one society and asked to identify an analogous set of roles, ideas, or structures in another society.

6. **Draw inferences about the experiences, problems, and opportunities that cultural groups have encountered in the past.**

Items addressing this learning outcome require students to examine past experiences of various cultural groups. These groups include racial groups such as Asian, ethnic groups such as Eskimo, nationalities such as Italian, and religious groups such as Baptist. The items will contain information for students to interpret. Students will need to apply general background knowledge

concerning cultural groups to the situations described in the items. The students could be presented with a set of choices or could be asked to explain what inferences they draw from the information presented in an item.

7. Describe how the customs and traditions of immigrant and other groups have shaped American life.

Many cultural groups have contributed to the nature of the American culture. Items for this outcome explore some of the ways life in the United States has been impacted by the customs and traditions of various groups. Students could be asked to identify or explain how life in the United States has been affected by different groups. Students could also be asked to identify a group that made a specific contribution to American life.

STRAND III - WORLD INTERACTIONS

The World Interactions strand focuses on the student's understanding and use of maps, charts, and graphs. Items present information in a variety of forms for students to analyze and interpret.

8. Utilize map skills:

(a) apply latitude and longitude to locate points on maps and globes,
(b) distinguish between relevant and irrelevant information on a map for a specific task.

Citizens interpret information on maps for a variety of purposes. This outcome focuses on the use of maps.

Items for *8a* require students to make use of latitude and longitude. The items could ask students to locate bodies of water or land areas on a map. Items for *8b* could ask students to identify what parts or features of a map (e.g., title, index, key) are needed to supply necessary information for some purpose. The students could also be asked to explain how to use different parts or features of a map to accomplish a given task.

9. Interpret and analyze maps, charts, or graphs to formulate geographic ideas:

(a) utilize time zones to compute differences in time and to describe their impact on human activities,
(b) determine and explain relationships among resources, economic activities, and

population distribution.

Maps, charts, and graphs are increasingly used by the media to convey information. Citizens need to be able to understand information that is presented in a variety of formats.

Items for *9a* require the student to use the world's 24 time zones to understand concerns involving worldwide travel and communication. Students could be asked to calculate the difference in time across time zones. Students could also be asked to determine how time zones impact planning for travel, sending a FAX, or another similar situation.

Items for *9b* use maps, charts, or graphs to illustrate climatic regions, resource distribution, population data, cultural patterns, and other types of information. Students will be provided with information to interpret. They could be asked to identify a relationship that exists based on the information provided. Students could also be asked to interpret a relationship between any of the factors portrayed on maps, charts, or graphs.

10. Use maps of North America or the world to identify physical and cultural regions and to show relationships among regions.

This learner outcome examines physical and cultural regions of the world. A physical region is an area characterized by common natural features of the Earth's surface which give a measure of unity and make it different from surrounding areas (e.g., a coastal plain or desert). A cultural region is an area characterized by common human features or traits which give a measure of unity and make it different from surrounding areas (e.g., a political unit or land use area).

Students could be asked to identify regions using a map key. They could be asked to use information to describe the characteristics that define a region. Students could also be asked to identify or explain the connections that exist between different types of regions (physical and/or cultural).

11. Examine instances of contact between people of different regions of the world and determine the reasons for these contacts.

Increasingly, people from various countries interact with one another because of such factors as trade, politics, religion, and tourism. Items for this outcome ask students to analyze examples of contacts among various groups, societies, and nations. Students could be asked to identify or explain the reasons for contacts between peoples of the world.

STRAND IV - DECISION MAKING AND RESOURCES

Items in the Decision Making and Resources strand assess the student's understanding of factors of production, economic decisions, competition, and trade.

12. Describe the role of each factor of production in producing a specific good or service and suggest alternative uses for the resources involved.

This learning outcome requires students to identify how the four basic factors of production (land, labor, capital, and entrepreneurship) are used to produce goods and services. A thorough understanding of the factors of production is required. *Land* refers to productive resources occurring in nature such as water, soil, trees, and minerals. *Labor* consists of the talents, training, and skills of people that contribute to the production of goods and services. *Capital* refers to productive resources made by past human efforts and includes resources such as buildings, machinery, vehicles, and tools. *Entrepreneurship* consists of the activities of profit-seeking decision makers who make decisions about which economic activities to undertake and how they should be undertaken.

Test items require students to identify the various uses that can be made of certain resources. Students need to recognize that any given resource can be used in a variety of ways. Students could be asked to provide examples of a given factor or to categorize a set of examples by the factor of production they represent. They could be asked to identify factors of production based on descriptions of the factors. Students could also be asked to suggest a use for a specific factor of production and to provide examples of alternative uses for a factor of production.

13. Identify the factors that influence:

(a) consumer decisions to demand goods or services,
(b) producer decisions to supply goods or services.

Consumers are people who purchase or use goods and services to satisfy wants or needs. Items for *13a* require that the student be able to recognize elements that influence the making of consumer decisions (e.g., price advertising, quality, packaging). Test items could describe a situation and ask students to determine the factor which influenced a consumer decision. Students could also be asked to explain how a particular factor influenced a consumer decision.

Producers are people who are involved in combining land and capital to provide goods and services. Items for *13b* require that the student be able to recognize elements that influence the making of producer decisions (e.g., demand, competition, available resources). Test items could describe a situation and ask students to determine the factor which influenced a producer decision.

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Students could also be asked to explain how a particular factor influenced a producer decision.

14. Identify the factors that determine the degree of competition in a market and describe the impact of competition on a market:

(a) identify advantages and disadvantages of competition in the marketplace,
(b) explain the general relationship between supply, demand, and price in a competitive market.

Competition refers to the rivalry between businesses for customers. Such competition has both advantages and disadvantages to both the buyer and the seller, which the student must be able to recognize in items for *14a.* Items could present students with a description of competition in a marketplace and ask them to select a particular advantage or disadvantage of the competition. Students could also be asked to explain the advantages or disadvantages of competition in a given situation.

There is a flow to a competitive market economy in which the connection between the supply of a good, the demand for a good, and the price of that good are closely related. Students could be asked to examine an economic activity and to indicate how the activity affects the relationship between supply, demand, and price.

15. Use information about global resource distribution to make generalizations about why nations engage in international trade.

Productive resources are unevenly distributed around the world. While one country may have an abundance of a particular resource, another country may be lacking that resource. Trade may develop between the countries involved in this type of situation.

Items for this learning outcome ask students to analyze actual trade relations between countries. Students could be asked to recognize the nature of a trading relationship. Students could also be asked to explain how nations can resolve a specific problem involving a disparity in resources.

STRAND V - DEMOCRATIC PROCESSES

Items in the Democratic Processes strand assess the student's understanding of the functions and activities of the national government's three branches as well as key characteristics of American democracy. The items will also address the different types of government that exist throughout the world.

16. Identify the main functions of the executive, legislative, and judicial branches of the United States national government and cite activities related to these functions.

This learning outcome focuses on the relationship between the activities and functions of branches of the national government. The main function of the legislative branch is to make laws. Items addressing this outcome could use other expressions such as *federal legislature* or *Congress* as well as *legislative branch.* The primary function of the executive branch is to enforce the laws. Items could use other terms such as *President* or *executive agencies* as well as *executive branch.* The primary functions of the judicial branch are to interpret the meaning of the laws and to apply the laws in specific cases. Items could use other expressions such as *federal courts* or *federal court system* as well as *judicial branch.*

There are many activities related to the main functions of the branches of government. Some of these activities include:

- legislative branch - writing proposed legislation and holding committee hearings;
- executive branch - appointing officials and coordinating work of agencies; and
- judicial branch - conducting trials and sentencing convicted persons.

Test items could ask students to identify a main function of a branch of the federal government. Students could be asked to investigate descriptions of activities and identify the branch involved or link the activities with a main function of the branch. Students could also be asked to describe the functions of the branches and to provide examples of related activities.

17. Interpret how examples of political activity illustrate characteristics of American democracy.

Democracy, as practiced in the United States of America, has certain key characteristics. These characteristics include:

- the people serve as the source of the government's authority;
- all citizens have the right and responsibility to vote and influence the decisions of the government;
- the people run the government directly or through elected representatives;
- the powers of government are limited by law; and
- all people have basic rights guaranteed to them by the Constitution.

Items for this outcome will require students to examine applications of these characteristics of American democracy. Students could be presented with an example of a political activity and asked what characteristic of American democracy is being illustrated. They could also be asked to explain how information that is presented relates to the characteristics of American democracy.

18. Classify characteristics of government that are typical of a monarchal, democratic, or dictatorial type of government.

A *monarchal* type of government is headed by a single leader (a king or a queen) whose title is usually hereditary. A *democratic* type of government is one in which the people hold the power to govern and the rights of the people are guaranteed by law. A *dictatorial* type of government is headed by one person or a small group of persons holding total power with little responsibility to the people. Power is usually acquired by force or through an election in which the people have no choice.

Students could be asked to examine a description of a government and to classify the type of government described. Students could also be asked to identify types of government and to illustrate each type by indicating appropriate characteristics.

STRAND VI - CITIZENSHIP RIGHTS AND RESPONSIBILITIES

Analyzing information, examining alternative ways to achieve civic goals, and resolving conflicts are aspects of participatory citizenship that are subjects for this strand. These civic activities help prepare students for their roles as adult citizens. Items in this strand assess the student's understanding of civic issues and goals, conflict resolution, and citizen participation.

19. **Analyze information on civic issues by organizing key ideas with their supporting facts.**

Citizens need to be able to identify the main idea of a public issue. Items addressing this learning outcome often use statements like those found in local news sources. Students will be asked to examine information and identify the main idea and/or the supporting facts that are supplied.

20. **Identify and analyze alternatives through which civic goals can be achieved and select an appropriate alternative based upon a set of criteria.**

A democratic republic depends upon its citizens making reasoned choices when presented with various alternatives to meet civic goals. Items addressing this learning outcome explore ways in which local public issues (e.g., fire hydrant repair, use of public buildings, recycling programs) may be resolved.

Students could be asked to identify an appropriate course of action given a particular set of criteria. The items could ask students to explain how a particular course of action meets a given set of criteria. The items could also ask students to assess the advantages and/or disadvantages of different strategies that could be used to achieve a civic goal.

21. **Identify ways to resolve private and public conflicts based on principles of fairness and justice.**

Fairness and justice are basic elements in the civic society of the United States of America and are characteristics of good citizenship. *Fairness* emphasizes impartiality and honesty in dealing with others. *Justice* stresses following a standard of what is right and proper. Together, they enhance the ability of people to respect and to get along with each other.

Items addressing this outcome explore applications of fairness and justice in private and public settings. Students could be given an example of a conflict and asked to identify a fair or just solution. Students could also be asked to explain how a proposed solution to a conflict is either fair or just.

22. **Identify examples of citizen participation in political systems around the world.**

The international political scene is composed of monarchies, dictatorships, and democracies—all of which have their unique attributes. Items for this outcome will present scenarios of political activities in various countries (e.g., Great Britain, Uganda, Argentina). Students could be asked to identify or characterize how people participate in the political system of another country.

What is some additional information concerning the learning outcomes?

Items addressing any learning outcome could refer to written or graphic materials. The graphic materials may include pictures, maps, charts, or graphs. Students should carefully examine any written or graphic material included as part of a test item and use the information contained as a basis for answering the item.

Items addressing any learning outcome could ask students to offer explanations as part of their answers. When asked to give an explanation, students should not limit their responses to a simple answer. They should give reasons, identify causes, indicate developments, or show relationships as called for in a particular item.

How are the tests scored?

Each of the multiple–choice items in the test is worth one point; each of the short-answer items is worth two points; and each extended-response item is worth four points. Altogether, the thirty-four multiple-choice items are worth 34 points; the ten short-answer items are worth 20 points; and the two extended-response items are worth 8 points. The total test score is 62 points. (See Table IV on page 40.)

Conventions of writing (sentence structure, word choice, usage, grammar, spelling, and mechanics) will not affect the scoring of short-answer or extended-response items, unless there is interference with the clear communication of ideas.

Short-answer items will be scored on a *2-point* scale based on these general guidelines:

> A *2-point* response is complete and appropriate. It demonstrates a thorough understanding of the concept or item. It indicates logical reasoning and conclusions. It is accurate, relevant, comprehensive, and detailed.
>
> A *1-point* response is partially appropriate. It is mostly accurate and relevant but lacks comprehensiveness and demonstrates an incomplete understanding of the concept or item. It contains minor flaws in reasoning or neglects to address some aspect of the concept or item.
>
> A *0* is assigned if the response indicates no understanding of the concept or item.

Extended-response items will be scored on a *4-point* scale based on these general guidelines:

A *4-point* response provides evidence of extensive interpretation and thoroughly addresses the points relevant to the item. It is well-organized, elaborate, and thorough. It is relevant, comprehensive, detailed, and demonstrates a thorough understanding of the concept or item. It contains logical reasoning and communicates effectively and clearly. It thoroughly addresses the important elements of the item.

A *3-point* response provides evidence that an essential interpretation has been made. It is thoughtful and reasonably accurate. It indicates an understanding of the concept or item, communicates adequately, and generally reaches reasonable conclusions. It contains some combination of the following flaws: minor flaws in reasoning, neglecting to address some aspect of the concept or item, missing details.

A *2-point* response is mostly accurate and relevant. It contains some combination of the following flaws: incomplete evidence of interpretation, unsubstantiated statements made about the text, an incomplete understanding of the concept or item, a lack of comprehensiveness, faulty reasoning, or unclear communication.

A *1-point* response demonstrates a partial understanding of the concept or item but is sketchy and unclear. It indicates some effort beyond restating the item. It contains some combination of the following flaws: little evidence of interpretation, unorganized and incomplete response, failure to address most aspects of the concept or item, major flaws in reasoning that led to invalid conclusions, a definite lack of understanding of the concept or item, or demonstrates no coherent meaning from text.

A *0* is assigned if the response indicates no understanding of the concept or item.

Facts from the Sixth-Grade Proficiency *Field Test*

Test items based on the citizenship learning outcomes were field tested in April 1995. While the number of students responding to each test was limited, some general observations regarding student achievement can be made. The summary below is based upon review of student performance on multiple-choice items only. Scored examples of short-answer and extended-response items found on the practice test will be available in the winter of 1996.

- Student performance was highest on multiple-choice items measuring outcomes 3, 7, 11, and 13.
- Student performance was lowest on multiple-choice items measuring outcomes 12, 16, and 18.

For more information on citizenship learning outcomes, see the Social Studies: *Ohio's Model Competency-Based Program.*

Science

What can students expect on the Sixth-grade Proficiency Test in Science?

The Sixth-grade Proficiency Test in Science is defined by seventeen learning outcomes. These learning outcomes, based on Ohio's *Model Competency-Based Science Program*, were developed by committees made up of Ohio citizens (educators and business members) through a consensus-building process. These learning outcomes have been identified from the four strands in the State Board adopted model curriculum.

Each form of the proficiency tests includes some embedded field test items. There are 5 field test items embedded in the science test, making a total of 51 items, of which only 46 are counted to obtain the students' science scores. These field test items give ODE the potential to continue adding to the item bank for future test forms.

Each form will contain 34 multiple-choice items, 10 short-answer items, and 2 extended-response items. Altogether, the 34 multiple-choice items are worth 34 points, the 10 short-answer items are worth 20 points, and the 2 extended-response items are worth 8 points, making a total of 62 points. In all, the multiple-choice items account for about 55% of the total score; short-answer items, 32%; and extended-response items, 13%.

Table VI
Science Test Distributions

Type	Number of Items	Total Points	Total Percent
Multiple Choice	34	34	55
Short Answer	10	20	32
Extended Response	2	8	13
TOTAL	46	62	100

Short-answer items might ask students to provide an explanation for an answer they have chosen or a conclusion they have made; make and justify predictions; propose a procedure to resolve an investigation; interpret information from a chart, graph, paragraph, or drawing; explain simple cause-and-effect relationships; provide examples; or explain the cause of certain natural phenomena or observations.

Extended-response items might ask students to evaluate a procedure and point out its flaws and/or suggest improvements; make and justify predictions or conclusions; describe natural processes or interactions among the components of a biological or physical system; make and use inferences in resolving an investigation; and interpret information from a chart, graph, paragraph, or drawing.

Each strand has at least one short-answer or one extended-response item. Since credit for answers is usually based on demonstrated understanding of concepts, students should be encouraged always to explain their answers, when asked to do so. The more understanding that a student demonstrates, the more credit may be assigned.

Table VII
Science Item Distributions

Strands	Multiple Choice	Short Answer	Extended Response	Totals
I. Nature of Science (5)	8-12	1-3	0-1	9-16
II. Physical Science (5)	8-12	1-3	0-1	9-16
III. Earth and Space Science (3)	5-9	1-3	0-1	6-13
IV. Life Science (4)	6-10	1-3	0-1	7-14
Total Number of Items	34	10	2	46
Total Number of Points	34	20	8	62

( ) = number of learning outcomes

A sixth-grade level of competency in science requires an understanding of scientific processes and inquiry, and application of knowledge, skills, and concepts to problem-solving situations. Test items assess the learning outcomes at one of three levels of science processes, as described on the following page.

Acquiring Scientific Knowledge (approximately 30% of the items on the test)

Items in this category test students' proficiencies at recalling, observing, collecting, and recording data and information from a variety of sources and representations and performing operations and making measurements to obtain data. This includes the ability to read graphs and tables; take measurements and/or make observations or identifications from graphs, keys, tables, or drawings; and recall fundamental facts, concepts, or relationships.

Processing Scientific Knowledge (approximately 45% of the items on the test)

Items in this category test students' proficiencies at organizing, interpreting, manipulating, verifying, summarizing, and reformulating observations and data. This includes the ability to interpret data or information from text, graphs, tables, or drawings; recognize or infer relationships, structure, and/or function among objects or organisms from text, tables, or drawings; and recognize procedures appropriate to a given investigation.

Extending Scientific Knowledge (approximately 25% of the items on the test)

Items in this category test students' proficiencies at evaluating, applying, formulating, transforming, and communicating ideas and hypotheses in various contexts. This includes the ability to propose solutions or conclusions based on data from graphs, tables, text, or drawings; determine and/or explain the effectiveness of a procedure; and use spatial, inductive, or deductive reasoning in problem solving.

What are the sixth-grade learning outcomes in science, and what do they mean to students and teachers?

The learning outcomes define the proficiencies that sixth-grade students are expected to possess and apply as a result of their learning experiences from kindergarten through February of the sixth-grade year. The seventeen learning outcomes are grouped into four strands:

- Nature of science
- Physical science
- Earth and space science
- Life science

The learning outcomes and related information about test content are provided below. The information included in this guide applies to most test items; however, the descriptions might not cover all items that could be used on the tests.

STRAND I - NATURE OF SCIENCE

Built into this science test is an assessment of students' abilities and thinking habits in investigating science ideas. The five outcomes in this strand overlap traditional science units and each other and should therefore be reinforced throughout the science curriculum—that is, should be taught in context—at every grade level, in nearly every unit.

1. **Use a simple key to classify objects, organisms, and/or phenomena.**

   This outcome tests students' abilities to classify or identify things using a simple identification key (dichotomous key, flow chart, key in table or chart format). This can mean using a key to identify which one of a set of objects can be identified by name or as belonging to a particular group; using a key or flow chart to separate large groups of objects into smaller groups; or analyzing a key to determine what characteristic always distinguishes one group, organism, or object from another. Dichotomous keys have two divisions or choices at each step and are typically based on an "either-or" classification system—either something has a particular characteristic or it doesn't.

   The use of a dichotomous key relies on the student's ability to make clear observations and follow a logical sequence. Students should know how to proceed through a dichotomous key step-by-step, from the beginning, to identify a single unknown object or organism. Students should also be able to go to an object or organism identified in the key, and proceed "backward" thoroughly, step-by-step, to gather or identify all distinguishing characteristics of an object or organism. Important to such processes are practice in following written directions and in reading keys such as those found in many plant and animal "field guide" series.

   Any illustrations in test items will *clearly* display all relevant key characteristics needed to distinguish groups or objects from one another.

2. **Identify the potential hazards and/or precautions involved in scientific investigations.**

   This outcome focuses on identifying basic safety measures (or precautions); explaining the reasons for existing precautions or safety measures; identifying possible dangers to human safety (hazards), equipment or materials, and/or natural ecosystems; and predicting potential hazards or

bad results from circumstances. Safety measures addressed in items may include the following: fire, glassware, eye and face, chemical, electrical, and sharps safety; dress code; and clean-up. See Appendix C in Ohio's *Model Competency-Based Science Program* for references to specific safety publications and guidelines.

Students should know the limits and rules of acceptable behavior in an activity; they should also be accustomed to discussing safety as part of any activity.

3. **Make inferences from observations of phenomena and/or events.**

Students should be able to identify inferences that are consistent with data or observations; use known characteristics of plants or animals or their remains to infer or extrapolate other characteristics of those plants or animals (or remains); and use inductive and deductive reasoning with visual representations, charts, text, or graphs in items, to make or identify correct inferences. For instance, if an adult animal has gills, an inference can be made that the animal lives in an aquatic environment.

By the sixth grade, students should clearly understand the difference between an inference and an observation, and should be making inferences about the meaning of observations they (or others) have made, as well as using these inferences to design questions and simple tests to verify their inferences.

4. **Identify the positive and/or negative impacts of technology on human activity.**

Technology is defined as the application or use of scientific knowledge or inventions; *human activity* is interpreted to mean "human life activities" broadly, so topics addressed range from health tests and regulations to environmental regulations and issues that impact humans, to procurement of "crucial resources" such as water, food, shelter, etc. Students should be able to identify or deduce from text and/or prior knowledge the positive or negative impacts of a particular technology on human life activities.

Students should be aware that there are few human activities in which impacts are entirely positive or entirely negative. In their explorations and asking of questions, students should have frequent experience in discussing both sides of human activities. From these discussions and explorations, students should be able to make decisions and provide written justification for their decisions.

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5. Evaluate conclusions based on scientific data.

This outcome tests students' abilities to identify or evaluate conclusions from graphs, tables, charts, and/or text information; make conclusions about relationships from data; summarize or identify summaries of data from charts, tables, or graphs; and analyze whether conclusions about test results can be made based on previous test results and known changes to a test set-up. Since scientific data are often presented in graph or table format, items include maps, graphs, or tables (and keys) of data for analysis; item content can range from weather data to physical characteristics of substances (melting point, boiling point) to statistics about populations or natural disasters.

Students should be able to interpret data and make conclusions and decisions based on the data that are critical. Also, since learning in science is often linked to finding flaws in data or conclusions, students should be practiced in relying on their own data (or others' data) and examining their conclusions for flaws, as well as in examining data for flaws. Students should be practiced in making observations about data, and in distinguishing inferences from observations.

STRAND II - PHYSICAL SCIENCE

Commonly thought of as physics and chemistry, physical science for this level is limited to physical and chemical principles that can be observed and explored, and the inferences that can be made, based on concrete experiences that can be observed without complicated instrumentation or theories.

6. Recognize the advantages and/or disadvantages to the user in the operation of simple technological devices.

Advantages and/or disadvantages to the user refers broadly to a device's mechanical advantage, or the ratio of the output force produced by a machine to the applied input force. The concept of mechanical advantage, rather than the term itself, is tested. For instance, an item might test students' ability to recognize an advantage of using a ramp to slide a heavy box into a truck (less force is needed to move the object) in comparison with lifting the box straight up off the ground, as well as a disadvantage of using a ramp (the box must be moved through a greater distance). *Simple technological devices* are straightforward, mostly one-function devices that are real-life applications of the six basic simple machines (lever, wedge, pulley, wheel and axle, inclined plane, and screw): ramps, pliers, scissors, wheelbarrows, etc.

Students should understand that simple machines do not reduce work, but they commonly make an action less effort for people. Students should also know that the principle "you don't get something for nothing" applies to simple machines: when a machine is used and the effort gets easier, something else (like speed, or the distance of the effort) is sacrificed. Students should be practiced at discussing the advantages and disadvantages of any simple technological device as they explore its functions and uses in a real-world context.

7. **Predict the influence of the motion of some objects on other objects.**

Students should have a practical understanding of Newton's laws of motion: (1) an object will remain at rest or in uniform motion unless acted on by an outside force; (2) when a force acts on an object, it changes the momentum of that object, and this change is proportional to the applied force and to the time that it acts on the object; and (3) every action (force) is accompanied by an equal and opposite reaction (force). Students should be able to predict the motion of objects thrown or released by people who are in motion; identify or describe how the motion of one object can affect the motion of other objects; and identify or describe the apparent forces or impacts people can feel as a result of a change in an object's motion. For instance, when an elevator begins descending rapidly, the people in it will have a slight "floating" sensation, and their feet will press more lightly against the elevator floor (since the people were at rest, their bodies tend to remain at rest even when the car moves downward). Another example would be when a rowboat is traveling from north directly south, a strong wind from the west would tend to change the boat's direction to the southeast.

Among the fundamental concepts students should understand are that things move only when something moves them; they keep moving until something stops them; the harder something is pushed, the faster it goes; and the more massive something is, the harder it is to move. Students who can best apply those concepts are those who have observed many moving things and investigated why they moved and why they may have stopped.

8. **Propose and/or evaluate an investigation of simple physical and/or chemical changes.**

This outcome tests students' abilities to distinguish between or identify changes that are physical changes only and changes that involve chemical changes; identify or describe procedures that would resolve investigations of physical and/or chemical changes; identify or describe the rate or nature of physical and/or chemical changes that are taking place; and evaluate how well a particular investigation or procedure measures physical and/or chemical changes. For test purposes, *simple* means *observable*. A physical change involves a change in the size, shape (configuration), or state of matter of a substance, *without* its producing or becoming a new substance, whereas a chemical change results in a permanent change in properties.

Simple chemical changes are very difficult to reverse, involve some kind of change in the properties of the material, and often give off heat on their own. Simple physical changes are more easily reversible and do not involve permanent changes in the properties of a material. Students should examine the characteristics of something before and after an event and use this type of analysis to decide whether a change is chemical or physical. Many common devices such as chemical "cold packs" or "heat packs" are in the range of student experience for this outcome, as are the effects of physical changes caused by water and chemical changes involving water and other common elements.

9. Provide examples of transformation and/or conservation of matter and energy in simple physical systems.

Students should be able to identify what type of energy transformation is occurring in a situation; identify or give an example (situation) of energy being transformed from one specific form to another; describe or identify something that performs a particular transformation of energy; and identify or describe how energy is conserved in a situation, or how matter can be converted into other matter plus energy (e.g., combustion), or how energy can be used in converting matter (e.g., photosynthesis). Students should have a basic understanding of potential and kinetic energy; the five main forms of energy (electrical, mechanical, chemical, thermal [heat], and nuclear); various types of energy conversions, one form to another; conversions of matter to energy, and energy to matter; and the laws of conservation of matter and energy.

In any system, energy must be accounted for, and students should be practiced in explaining how the energy in a given system has changed through an event. Because energy can be a difficult and abstract concept for students, students should be accustomed to discussing and describing familiar energy movements in their surroundings, such as those involved with a light bulb or a cup of hot tea. Specific names for the types of energy are learned as students use them in discussions and explanations.

10. Identify simple patterns in physical phenomena.

Simple patterns in physical phenomena includes such things as reflection and refraction of light and waves (e.g., in water); properties of waves (e.g., light and sound); production of high-pitched and low-pitched sounds (vibrating columns of air); elasticity and/or compressibility of materials; seasonal patterns (e.g., light and shadows) due to orientation of sun and earth; daily or seasonal temperature patterns of land and/or water; and movement of heat in a system and/or factors affecting heat movement (e.g., surface area). Students should be able to identify, deduce, and/or explain simple patterns and relationships from text, graphs, charts, drawings, or prior knowledge.

Patterns can also be the generalities that students infer from a broad range of observations; students should understand that while there may be some irregularities in events or phenomena they experience, an underlying pattern can often be found.

STRAND III - EARTH AND SPACE SCIENCE

Earth and space science at the sixth-grade level generally involves events or phenomena that students can witness either directly in their surroundings or indirectly through television or film. Collected observations and inferences made based on collected evidence are also topics for consideration.

11. Describe simple cycles of the earth, sun, and moon.

This outcome tests students' abilities to describe or identify arrangements of earth, sun, and moon that produce eclipses (solar and lunar), a new moon, high and/or low tides, seasons, phases of the moon (crescent to full), etc. Students should have a basic understanding of the relationship between the earth's tilt and the seasons; the relationship between hemispherical location and seasonal temperatures or cycles (e.g., amount of sunlight); the revolution of the earth around the sun and the moon around the earth; phases of the moon and their relationship to the moon's position near the earth; tides; and changing daylight/darkness hours. Particularly important is that students ***not*** retain common misconceptions regarding cycles or phenomena (e.g., the misconception that the earth's distance from the sun causes the seasons, or that a crescent moon is the result of the earth's shadow on the moon).

Since arrangements of the sun, earth, and moon are often simulated using models, students should be aware of and able to discuss limitations of such models. Students should also be able to discuss the concepts and phenomena reinforced by such models.

12. Identify characteristics and/or patterns in rocks and soil.

This outcome tests students' abilities to identify the relative hardness of a mineral using scratch tests and the Mohs, scale of hardness; recognize or describe in comparative terms (e.g., oldest, youngest) the age of disturbed or undisturbed rock layers; identify or describe characteristics and/or patterns caused by various natural phenomena (e.g., glaciers, earthquakes, rivers, wind); identify land features from a contour map; and analyze data about rock or soil types and identify the following: steps in the formation of rock types (igneous, sedimentary, and metamorphic), water-holding capacity, and factors affecting the development of soil (e.g., climate, plants and animals, land surface features, time, type of parent material).

Students should be familiar with those characteristics or patterns of rocks and soil that can be directly observed or tested; erosion, weathering, layering, hardness testing, and scratch testing are things with which students should have direct experience.

13. **Demonstrate an understanding of the cycling of resources on earth, such as carbon, nitrogen, and/or water.**

Students should be able to identify major steps or processes in the carbon, nitrogen, and water cycles (e.g., respiration, combustion, photosynthesis, decomposition, evaporation, condensation, precipitation); identify or describe organisms or pathways through which these processes occur; identify or describe physical or biological factors that affect these processes; and identify where organisms get the nutrients or gases they need in the cycle, and/or how they make those nutrients or gases available to other organisms. Understanding of cycling of resources, plants' importance to all these processes, and environmental results of deforestation are important to this outcome.

Students should be practiced in thinking about the cycling of resources as *an accounting of things as they change form*, similar to how one can think of the conservation of mass or energy. Students should also be experienced in discussing and explaining what can account for changes in matter or the way resources can and cannot be cycled.

STRAND IV - LIFE SCIENCE

This program emphasizes life science concepts that can be directly observed or explored by students, while minimizing the need to acquire specific terminology.

14. **Trace the transmission of energy in a small, simple ecosystem and/or identify the roles of organisms in the energy movement in an ecosystem.**

Items will test students' abilities to analyze food chains and/or food webs and trace the energy transfer among organisms or the level of dependence of groups/organisms on one another; analyze or identify food pyramids for correct representation of energy available at various levels; identify the roles of organisms in a food chain, web, or small ecosystem (producer, consumer, decomposer; predator, prey, scavenger; etc.); identify the primary producers in an ecosystem; identify the relative amount (most, least) of energy from producers that is available to an organism or group of organisms in a food chain or web; and describe types of relationships organisms have with one another (parasitic, predator-prey, etc.). Students should recognize that food-chain arrows are drawn *from* organisms that are eaten *to* the organisms that eat them.

Students should be accustomed to accounting for the conservation of energy in living systems, just as they are in simple physical systems. Students should understand that organisms ultimately lose energy as heat and gain energy, directly or indirectly, from the sun. Energy can be stored in chemical bonds and passed on as organisms consume this food; and some energy is lost every time energy is transferred. Terms commonly used in discussion (such as producer, consumer, decomposer) should have strong experiential association for students.

15. Compare and/or contrast the diversity of ways in which living things meet their needs.

Ways in which living things meet their needs includes both physical characteristics and behaviors by which organisms meet basic needs: energy and/or nutrients for growth; water; shelter and protection or escape from other organisms; thermoregulation or reactions (e.g., migration, hibernation) to climate or other environmental stresses; elimination of wastes; reproduction; and growth and maturation. Items will test students' abilities to identify what need is being met by a particular characteristic or action; identify what characteristic or action would meet a particular need; compare the advantages and/or disadvantages of characteristics or actions that meet the same or similar needs; and analyze an animal's physical characteristics and tell how that animal would react to a particular stress. Items that require analysis of physical characteristics will be clearly illustrated.

Students must be familiar not only with the basic needs of living things, but with characteristics and behaviors through which those needs are met. Since the environments that provide basic needs often change with the seasons, students should be familiar with those changes, with organisms' responses to those changes, and with the effects those responses have. Students should have experiences of growing something or keeping something alive at home or in the classroom, or observations that provide similar understanding.

16. Analyze behaviors and/or activities that positively or negatively influence human health.

Students should be able to analyze and/or identify behaviors or activities that will have the most beneficial or harmful effects on human health in a given situation; identify the reasons for such effects; and identify actions to take in situations where there is potential for harm to human health. Topics or areas covered include exercise plans and precautions; food preparation and/or diet; public and personal health and hygiene; accident prevention with materials or equipment at home or in classrooms; *basic* first aid responses or measures; and safety measures in outdoor activities.

Clear advantages and disadvantages to human health are the focus of this outcome, and students should be practiced in explaining the science and logic behind their evaluations of the behaviors

or activities in question. Class-determined safety rules for activities are helpful references in students' learning of the principles of this type of decision-making.

17. **Analyze the impacts of human activity on the ecosystems of the earth.**

This outcome tests students' abilities to analyze, describe, or identify how human actions or activities can affect the earth's ecosystems and its plant and animal species, in terms of pollution (air, soil, water); conservation of natural resources (including preservation of land, plant and animal species); change or maintenance of habitats for particular plant or animal species; erosion; soil fertility; and effects associated with the use and/or production of different forms of energy.

Students should understand that human activity can have certain effects on the environment, just as the characteristics of an environment can have certain effects or limits on human activity. There are advantages and disadvantages to any activity, and students should be able to identify or discuss these from multiple viewpoints.

What is some additional information concerning the learning outcomes?

In general, the science portion of the sixth-grade proficiency tests is designed to assess long-term student learning—problem solving and thinking skills—and is not limited to rote knowledge and facts.

This type of learning, according to the State Board adopted model program, is best achieved through hands-on experience, the use of authentic science text, and long-term activities during which students ask questions, collect and analyze data, and make and explain decisions. In this view of science, students' reasons and processes to find answers are more important than their memory of facts. The more experience students have with collecting and analyzing data and information, and justifying their answers, the better prepared students will be.

The learning outcomes reflect the world view of science as both a body of knowledge and a process for producing or obtaining knowledge; they also reflect the "hands-on, minds-on, inquiry-based" approach to science. Though manipulatives are not part of the science test, items with pictorial representations are frequent, and outcomes are assessed in multiple formats that address different learning styles.

How are the tests scored?

Each multiple-choice item on the test is worth one point; each short-answer item is worth two points; and each extended-response item is worth four points. Altogether, the thirty-four multiple-choice items are worth 34 points; the ten short-answer items are worth 20 points; and the two extended-response items

are worth 8 points. The total test score is 62 points. (See Table VI on page 55.)

Conventions of writing (sentence structure, word choice, usage, grammar, spelling, and mechanics) will not affect the scoring of short-answer or extended-response items, unless there is interference with the clear communication of ideas.

Short-answer items will be scored on a *2-point* scale based on these general guidelines:

A *2-point* response shows complete understanding of the concept or task, logical reasoning and conclusions, and correct set-up.

A *1-point* response contains minor flaws in reasoning, neglects to address some aspect of the task, or contains a conceptual error.

A *0* is assigned if the response indicates no scientific understanding of the concept or task.

Extended-response items will be scored on a *4-point* scale based on these general guidelines:

A *4-point* response contains an effective solution. It shows complete understanding of the concept or task and thoroughly addresses the points relevant to the solution. It contains logical reasoning and valid conclusions, communicates effectively and clearly through writing and/or diagrams, and includes adequate and correct set-up when required. It may go beyond the requirements of the item.

A *3-point* response contains minor flaws. Although it indicates an understanding of the concept or task, communicates adequately through writing and/or diagrams, and generally reaches reasonable conclusions, it contains minor flaws in reasoning and/or knowledge, or neglects to address some aspect of the item.

A *2-point* response indicates gaps in understanding and/or execution. It contains some combination of the following flaws: an incomplete understanding of the concept or task, failure to address some points relevant to the solution, faulty reasoning, weak conclusions, unclear communication in writing and/or diagrams, or a poor understanding of relevant scientific procedures or concepts.

A *1-point* response indicates some effort beyond restating the item or copying given data. It contains some combination of the following flaws: little understanding of the concept or task, failure to address most aspects of the item or solution, major flaws in reasoning that led to invalid conclusions, a definite lack of understanding of relevant scientific procedures or concepts, or it omits significant parts of the item and solution or response.

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A *0* is assigned if the response indicates no scientific understanding of the concept or item.

Facts from the Sixth-grade Proficiency *Field Test*

Test items based on the science learning outcomes were field tested in April 1995. While the number of students responding to each test item was limited, some general observations regarding student achievement can be made. The summary below is based upon review of student performance on multiple-choice items only. Scored examples of short-answer and extended-response items found on the practice test will be available in the winter of 1996.

- Student performance was highest on multiple-choice items measuring outcomes 2, 5, 7, and 16.
- Student performance was lowest on multiple-choice items measuring outcomes 9, 10, 11, and 13.

For more information on science learning outcomes, see the Ohio *Model Competency-Based Science Program*.

To obtain further information on

Writing learning outcomes and/or the State Board adopted Ohio *Model Competency-Based Language Arts Program*, contact a language arts curriculum specialist (614) 466-2761 or (614) 466-1317.

Reading learning outcomes and/or the State Board adopted Ohio *Model Competency-Based Language Arts Program*, contact a language arts curriculum specialist (614) 466-2761 or (614) 466-1317.

Mathematics learning outcomes and/or the State Board adopted Ohio *Model Competency-Based Mathematics Program*, contact a mathematics curriculum specialist (614) 466-2761 or (614) 466-1317.

Citizenship learning outcomes and/or the State Board adopted Social Studies *Ohio's Model Competency-Based Program*, contact a social studies curriculum specialist (614) 466-2761 or (614) 466-1317.

Science learning outcomes and/or the State Board adopted Ohio *Model Competency-Based Science Program*, contact a science curriculum specialist (614) 466-2761 or (614) 466-1317.

To obtain further information on

Sixth-grade Proficiency Tests, contact the Assessment Center (614) 466-0223.

Ohio Department of Education
Assessment Center
65 S. Front Street - Room 207
Columbus, Ohio 43215-4183

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